
# CIVIL AIR PATROL (CAP) AIRCRAFT REQUIREMENT STUDY

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**AFLMA FINAL REPORT LM199900600**

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**AIR FORCE LOGISTICS MANAGEMENT AGENCY**

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This study originally began in Sep 98 as a joint study between AFLMA's Maintenance and Transportation divisions to determine Civil Air Patrol's Aircraft and Vehicle requirements (LT 199824400). In Jan 99, AFLMA received permission from HQ AETC/LG to split the project due to the disparity of information required to determine both the aircraft and vehicle requirements.SAF/PAS 99-0693.

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The Air Force Audit Agency (AFAA) concluded in its Report of Audit EB0980013 (13 May 98), Air Force Oversight of CY 1996 Civil Air Patrol Corporation Activities, CAP-USAF, Maxwell AFB, AL 36112-6323 (Project 96516051), that CAP-USAF accepted from Civil Air Patrol, Incorporated, (hereafter referred to as CAP) aircraft and motor vehicle reimbursement requests without independently validating the need for the size of the fleets. The USAF reimburses CAP for Air Force assigned missions in accordance with the MEMORANDUM OF UNDERSTANDING between the United States Air Force and Civil Air Patrol (25 January 1991; amended 8 November 1991) and CAP Regulation 173-3 (1 May 1996) and is discussed in more detail on page 2 of this report. As a result, the AFAA estimated appropriated funds were used to reimburse CAP for 200 to 373 unnecessary aircraft (approximate value of $15M to $27M) and associated operational costs. In Sep 98, HQ AETC/LG tasked the AFLMA to determine the appropriate CAP aircraft fleet size (requirement) to perform its mission.

The objectives of the study were to determine the appropriate CAP aircraft fleet size to support:
(1) USAF assigned reimbursable missions (those missions categorized as CAP "A" missions in appendix B)
(2) USAF assigned non-reimbursable missions (those missions categorized as CAP "B" missions in appendix B) plus number (1) above
(3) All other CAP Corporate missions (those missions categorized as CAP "C" or "L" missions in appendix B) plus number (2) above

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# EXECUTIVE SUMMARY

## BACKGROUND PROBLEM STATEMENT

The Air Force Audit Agency (AFAA) concluded in its Report of Audit EB0980013 (13 May 98), Air Force Oversight of CY 1996 Civil Air Patrol Corporation Activities, CAP-USAF, Maxwell AFB, AL 36112-6323 (Project 96516051), that CAP-USAF accepted from Civil Air Patrol, Incorporated, (hereafter referred to as CAP) aircraft and motor vehicle reimbursement requests without independently validating the need for the size of the fleets. The USAF reimburses CAP for Air Force assigned missions in accordance with the *MEMORANDUM OF UNDERSTANDING between the United States Air Force and Civil Air Patrol* (25 January 1991; amended 8 November 1991) and CAP Regulation 173-3 (1 May 1996) and is discussed in more detail on page 2. As a result, the AFAA estimated appropriated funds were used to reimburse CAP for 200 to 373 unnecessary aircraft (approximate value of $15M to $27M) and associated operational costs. In Sep 98, HQ AETC/LG tasked the AFLMA to determine the appropriate CAP vehicle and aircraft fleet size (requirement) to perform its mission.

This study originally began in Sep 98 as a joint study between AFLMA's Maintenance and Transportation divisions to determine Civil Air Patrol's Aircraft and Vehicle requirements (LT 199824400). In Jan 99, AFLMA received permission from HQ AETC/LG to split the project due to the disparity of information required to determine both the aircraft and vehicle requirements.

## OBJECTIVES

Determine the appropriate CAP aircraft fleet size to support:

(1) USAF assigned reimbursable missions (those missions categorized as CAP "A" missions in appendix B)
(2) USAF assigned non-reimbursable missions (those missions categorized as CAP "B" missions in appendix B) plus number (1) above
(3) All other CAP Corporate missions (those missions categorized as CAP "C" or "L" missions in appendix B) plus number (2) above

## METHODOLOGY

The methodology centered on gathering information from CAP, CAP-USAF, HQ AFSVA/SVAP (OPR: USAF Aero Club Program), comparable organizations to CAP, commercial business who operate comparable single engine aircraft fleets, and conducting personal interviews.

## ASSUMPTIONS AND CONSTRAINTS

**The following factors affected the results of our analysis:**

This analysis only targets the 530 corporate aircraft fleet owned by CAP and does not consider member owned aircraft, which contributed only a very small percentage of CY 98 CAP total aircraft flying hours (Appendix D).

Historical flying hour data (for analysis, the total number of CAP annual aircraft flying hours) represented a good approximation of demand and, therefore, was used to make a comparison of the CAP aircraft fleet with other organizations. The demand was based on CAP meeting every assigned responsibility.

Some CAP wings reported their data in a timely manner while others have yet to report their data for the last months of CY 98. Due to some wings reporting CY 99 data and some wings that have yet to report late CY 98 flying hour data, the data as of 16 Feb 99 will be viewed as complete for CY 98 (Appendix D).

This study concentrated on the total aircraft requirement issue, irrespective of financial limitations. We did not attempt to analyze the funding of CAP aircraft or the current flying hour reimbursement policy, and therefore, did not consider operational and maintenance costs associated with the day-to-day and annual operating costs or explore the most cost-effective use of CAP aircraft.

When comparisons were necessary, the analysis was performed using data of similar aircraft (single-engine, 4+ seats).

Utilization rates (the number of hours per year per aircraft) provided a reasonable basis to determine aircraft requirements.

Analysis includes powered aircraft only and does not include nor allude to the use of 29 CAP gliders. Total flying hours for gliders were removed from reported flying hour data to ensure this analysis only considered powered aircraft data.

Due the versatility of the missions that CAP performs, non-quantifiable factors, such as magnitude/frequency/intensity of Search and Rescue (SAR)/ Disaster Relief (DR) efforts, pilot qualifications, distribution of aircraft, etc, must be considered when determining CAP aircraft requirements.

**The study was constrained by limited available data:**

CAP total flying hour data was limited to CY 98. Previous to this year, aircraft total flying hour data was not tracked by individual CAP mission symbol. Further discussions on data availability is discussed on page 10.

Search/rescue and counterdrug (CAP mission symbols A1, A3, and A5) flying hour data was available for CY92-CY98 from CAP Annual Reports to Congress. This data failed to provide any relevant use in the analysis because it only tracked total flying hours in the three CAP mission symbols previously mentioned and did not provide a complete history of actual hours flown in support of all CAP "A" missions.

The most current general aviation statistical data found available was limited to CY 96.

## CONCLUSIONS

1. No other comparable organizations were identified that perform the diversity and extent of Civil Air Patrol missions.

2. Although a CAP self-imposed aircraft utilization rate of 200 hours per year per aircraft seems reasonable (see discussion on page 12), this study could not validate that rate nor derive another with any better confidence in accuracy, due to data deficiencies and numerous variables both tangible and intangible. Based on CY 98 data, it appears that CAP may, in fact, be operating at a utilization rate of 245 hours per year per aircraft, a greater utilization rate than 86 percent of comparable general aviation aircraft. Since establishing an accurate utilization rate is key to development of a requirement formula, any valid, statistically relevant CAP aircraft fleet size determination was impossible.

3. There is a large variation in individual CAP wing aircraft utilization rates (the average number of aircraft flying hours per year per aircraft), ranging from 71 hours/year (New York) to 492 hours/year (Arkansas). Assuming that the 200 hours per year per aircraft utilization rate is reasonable, it is reasonable to conclude that the current fleet size is viable. This analysis determined that CAP would actually require 648 aircraft to operate at a 200 hour per year per aircraft--118 more aircraft than they currently own. Lack of derogatory documentation about the performance of CAP indicates that CAP has been successful at meeting assigned tasks with its current fleet of 530 aircraft. CAP's ability to field aircraft is the major contributing component for it to conduct operations.

4. In CY 98, 87 percent of CAP missions were for Air Force assigned (reimbursable and nonreimbursable) missions. According to AFPD 36-50, *Civil Air Patrol*, Attachment 1, paragraph A1.1 "Compliance with policy for employing the CAP will be assessed by taking flying-hour measurements from existing reports in the area of Air Force-assigned missions flown and total CAP missions . . . Efficient Air Force use of CAP will be reflected in a higher annual percentage of Air Force-assigned mission flying hours in relation to total CAP flying hours." Continued efficient use of CAP will be determined by monitoring and comparing

annual flying hours by this standard of annual percentage of Air Force assigned mission flying hours.

5. While HQ CAP personnel now believe they have a system to accurately track CAP flying hours, the CAP Form 18 database (Microsoft Access® database that tracks all aircraft flying hours by wing, aircraft tail number and mission symbol) does not include the ability to document individual CAP aircraft flights. This data will become more accurate as wing personnel become more familiar with the new database and it is populated with additional flying hour data in the following years.

## RECOMMENDATIONS

1. CAP establish an operational requirements document at each of the levels of command (squadron, wing, region, national) to help identify resources needed to achieve national goals and objectives. **(OPR: HQ CAP)**

2. Develop a requirements oversight council comprised of CAP-USAF and HQ CAP/DO personnel to review, justify, validate, and publish a national operational requirements document. AFPD 36-50, paragraph 7 states: "Headquarters US Air Force (USAF), through Air University and CAP-USAF, is responsible for establishing CAP support programs, identifying requirements, and executing programs in compliance with this directive." **(OPR: CAP-USAF and HQ CAP/DO)**

3. CAP wing/region commanders develop an employment plan for their aircraft and other resources. These individuals will be the most knowledgeable about the unique factors affecting the employment of aircraft within their respective wing or region. They will best be able to consider these factors along with current or planned Memorandum of Understandings (MOU) with state agencies. These employment plans should be forwarded to HQ CAP for verification and incorporated into national CAP goals and objectives. **(OPR: HQ CAP)**

4. Expand the CAP Form 18 database to include the ability to document individual CAP aircraft flights. At a minimum, information tracked should include sortie duration, mission symbol/mission number, mission performed, and agency supported. **(OPR: HQ CAP/DO)**

5. Address possible re-distribution of aircraft from wings with lower average utilization rates (the average number of aircraft flying hours per year) to wings with higher average utilization rates. **(OPR: HQ CAP)**

# PREFACE

I would like to acknowledge the assistance of all the personnel involved with this analysis at Civil Air Patrol National Headquarters, Maxwell AFB, AL. Colonel Glen Atwell (CAP) and his staff in the HQ CAP/DO office were particularly helpful in providing most of the data and answering many of my questions. I would also like to thank the personnel at CAP-USAF; Mr. Bruce Jones, Cessna Aircraft Company; Lieutenant John O'Leary, United States Coast Guard; Mr. Raoul Proteau, Civil Air Search and Rescue Association (CASARA); and Mr. Eric Treland, HQ AFSVA/SVPAR (USAF Aero Club Programs) for providing additional aircraft utilization data.

CHRISTOPHER L. MELCHER, Capt, USAF
Project Manager

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# CHAPTER 1

# INTRODUCTION

## BACKGROUND

On July 1, 1946, President Harry Truman signed Public Law 476 that incorporated Civil Air Patrol (hereafter referred to as CAP) as a benevolent, nonprofit organization. On May 26, 1948, Congress passed Public Law 557, which gave the Secretary of the Air Force the authority to provide financial and material assistance to the organization. Public law 557 remains largely unchanged today and can be found in Title 10 (Armed Forces), Chapter 909 (Civil Air Patrol) of the United States Code.

CAP is organized into a National Headquarters located at Maxwell Air Force Base in Montgomery, Alabama, eight geographical regions, and 52 wings -- one in each state, plus the District of Columbia and Puerto Rico. There are more than 1,700 units and some 59,000 members throughout the nation: 34,000 senior members and 25,000 cadets.

Today, CAP is a federally chartered auxiliary of the United States Air Force. Although CAP assumes a rank structure identical to the Air Force (denoted by CAP [Rank]), civilian volunteers have no active duty Air Force obligations or privileges and are not subject to articles of the Uniform Code of Military Justice. CAP functions in accordance with its Constitution and Bylaws, regulations, and other directives approved by the National Board and National Executive Committee (NEC) and issued by the Executive Director. The highest governing body of CAP is the National Board, chaired by a member of the CAP Corporation whose title is National Commander. This position is held by a CAP Brigadier General elected by the members. Other members of the Board include the eight region and 52 wing commanders. This governing body also includes an elected National Vice Commander, Chief of Staff, Legal Officer, Finance Officer, and Controller. There is one key position on the National Board that ties CAP to the Air Force - the Senior Air Force Advisor. The advisor's position is held by an active-duty Air Force Colonel who, in addition to serving as the Senior Air Force Adviser, is responsible for all active duty and DoD civilian employees who provide liaison oversight and advice to the CAP organization. In this capacity, the Senior Air Force advisor is also the CAP-USAF Commander. CAP-USAF is the Air Force organization responsible for the command and control of active-duty and reserve personnel and all other resources necessary for providing Air Force assistance to CAP in the fulfillment of its objectives and purposes.

When the National Board is not in session, the NEC is vested with all the powers of the National Board except amending the Constitution and Bylaws and electing the National Commander and National Vice Commander. The NEC consists of all members of the National Board except the wing commanders.

As an aviation-oriented volunteer organization, CAP utilizes a fleet of 530 corporate aircraft owned by CAP in the accomplishment of its three primary missions:

- Emergency Services (search and rescue, disaster relief, civil defense, etc.)
- Aerospace Education (to keep the membership and public informed on vital aerospace Issues)
- Cadet Program (designed to build character and inspire youth leadership through an interest in aviation)

The Air Force Audit Agency (AFAA) concluded in its Report of Audit EB0980013 (13 May 98), Air Force Oversight of CY 1996 Civil Air Patrol Corporation Activities, CAP-USAF, Maxwell AFB, AL 36112-6323 (Project 96516051), that CAP-USAF accepted from CAP aircraft and motor vehicle reimbursement requests without independently validating the need for the size of the aircraft fleet. The USAF reimburses CAP for Air Force assigned missions in accordance with the *MEMORANDUM OF UNDERSTANDING between the United States Air Force and Civil Air Patrol* (25 January 1991; amended 8 November 1991) and CAP Regulation 173-3 (1 May 1996). As a result, the AFAA estimates appropriated funds were used to reimburse CAP for 200 to 373 unnecessary aircraft (approximate value of $15M to $27M) and associated operational costs.

As stated previously, the USAF reimburses CAP for Air Force assigned missions in accordance with the *MEMORANDUM OF UNDERSTANDING* (MOU) *between the United States Air Force and Civil Air Patrol* (25 January 1991; amended 8 November 1991) and CAP Regulation 173-3 (1 May 1996). According to the MOU, "Appropriated funds are used for Civil Air Patrol support in those areas deemed necessary by the Air Force. Included is the cost of aircraft, vehicles, equipment, maintenance, commercial communications, fuel, and lubricants associated with Air Force-assigned missions." CAP assigns an "A" mission symbol to these qualifying missions (see Appendix B). CAP Regulation 173-3 establishes procedures for processing claims by CAP members and units for costs incurred while participating in Air Force assigned reimbursable missions. According to the regulation, CAP members will submit vouchers with receipts to their wing within 45 days of mission completion. The wing will then forward the documents to the wing liaison officer, who will then forward the verified vouchers to HQ CAP/FM. While these vouchers are eventually submitted to HQ CAP for reimbursement, the documentation and actual receipts are maintained at the wing level.

## PROBLEM STATEMENT

HQ AETC/LG tasked the AFLMA to determine the appropriate CAP aircraft fleet size (requirement) to perform its mission.

## STUDY OBJECTIVES

Determine the appropriate CAP aircraft fleet size to support:

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# CHAPTER 2

# RESEARCH

## METHODOLOGY

The methodology involved investigating CAP's current missions, aircraft inventory, and operational policies. Additionally, a review of USAF and CAP historical and current publications (instructions, regulations, manuals) were accomplished, interviews of CAP-USAF and CAP personnel were conducted, and private flying related organizations were contacted to help determine aircraft utilization rates and/or requirements.

HQ CAP and CAP-USAF were provided with a draft of this report for review and comment. They provided several comments that clarified information on current and planned HQ CAP processes, which have been incorporated into the report as appropriate. The analysis process entailed the following steps:

1. Determine the current fleet size and range of missions performed by CAP and obtain past aircraft flying hour data.

2. Review current and historical Air Force and CAP policy directives, instructions, regulations, and manuals.

3. Gather utilization rates of general aviation aircraft (defined as any aircraft that DOES NOT transport passengers or cargo for profit), USAF Aero Club aircraft, and comparable organizations aircraft fleets.

4. Determine how CAP utilizes their aircraft fleet compared to the aforementioned organizations.

5. Interview CAP and CAP-USAF personnel to determine the non-quantifiable requirements that impact CAP missions and aircraft fleet size.

6. Estimate the required utilization rate for CAP to perform their missions and identify the appropriate fleet size to implement this utilization rate.

7. Analyze the Air Force Audit Agency's Report of Audit EB0980013 (Air Force Oversight of FY 1996 Civil Air Patrol Corporation Activities, CAP-USAF, Maxwell AFB, AL) fleet size determination.

## ASSUMPTIONS AND CONSTRAINTS

**The following factors affected the results of our analysis:**

This analysis only targets the 530 corporate aircraft fleet owned by CAP and does not consider member owned aircraft, which contributed only a small percentage of CY 98 CAP total aircraft flying hours (Appendix D).

Historical flying hour data (for analysis, the total number of CAP annual aircraft flying hours) represented a good approximation of demand and, therefore, was used to make a comparison of the CAP aircraft fleet with other organizations. The demand was based on CAP meeting every assigned responsibility.

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# CHAPTER 3

# ANALYSIS AND RESULTS

## INTRODUCTION

This study comprised both quantitative and qualitative analysis, since some factors could not easily be folded into a hard requirements formula.

In addition to National Memorandums of Understanding (MOU) between CAP and other national agencies, each wing develops their own MOU with state and national agencies. These MOUs establish the services, limitations, and procedures for obtaining CAP support. However, these agreements do not specifically identify how many flying hours CAP will accomplish and are relatively broad in nature. Subject to aircraft availability, CAP performs many diverse missions and is not limited by an annual flying hour "ceiling".

## FACTORS BEARING ON THE ANALYSIS

CAP operates its current fleet of 530 aircraft to carry out a number of missions and responsibilities, designated by corresponding CAP mission symbols (Appendix B). On the basis of data for CY 98, the primary missions are in search and rescue/disaster relief (SAR/DR), counterdrug, and training/pilot proficiency categories. Together, these activities account for about 55 percent of the total aircraft operational hours.

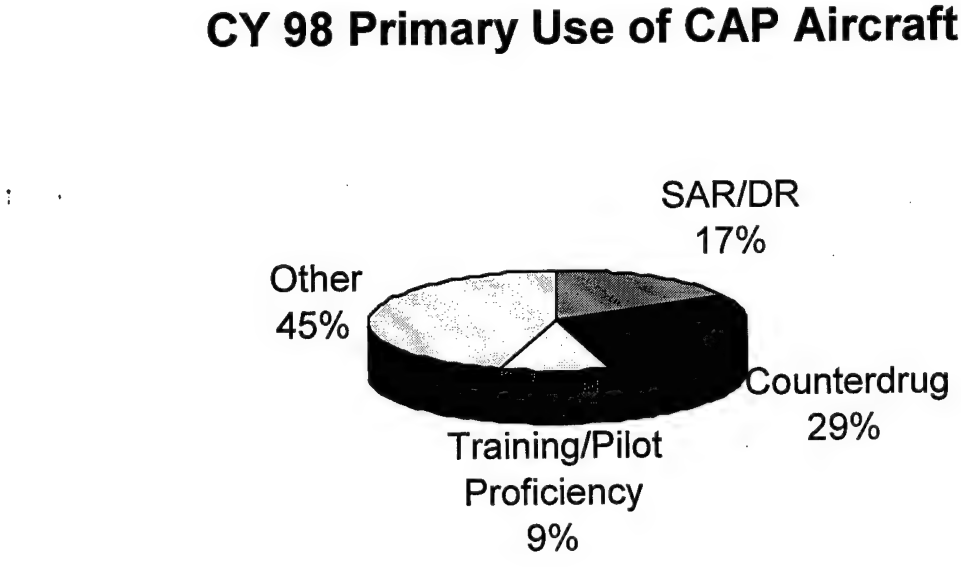


**FIGURE I.**

While it is not argued that CAP does require a corporate aircraft fleet to perform its missions, the question is how many aircraft do they need? CAP Regulation 67-4, *Supply – Acquiring, Reporting, and Disposing of Corporate Aircraft*, states the CAP will maintain 530 aircraft and that there is no maximum imposed on the annual hours that may be flown on a CAP aircraft. It further states that "the NEC [National Executive Committee] has established a minimum annual flying time of 100 hours per aircraft to ensure proper equipment maintenance throughout the life cycle of the machine." After discussions with CAP personnel, we determined that in 1995, CAP's governing organization, the NEC, increased the minimum annual flying time to 200 hours per aircraft to justify a corporate fleet of 530 aircraft. The 200 hours per year per aircraft was determined by dividing the estimated 110,000 total flying hours in 1995 by its 1995 aircraft fleet size of 530 aircraft (110,000 total flying hours ÷ 530 aircraft = 207.55).

Before 1998, CAP was not documenting their annual flying hours by mission type. Our study was hampered by the lack of available documentation in this area. Although CAP accurately documents counterdrug mission statistics and flying hour data, the same level of documentation is not applied to other missions' flying hour data. This is due in large part to the fact that counterdrug mission reimbursement is distributed directly from HQ CAP. The counterdrug office at HQ CAP requires the submission of specified mission data before any reimbursements are made. All other mission reimbursements are made at the wing level or by a state agency through established Memorandums of Understanding (MOU). Only since January 1998, with the advent of the automated CAP Form 18 data tracking, has it been possible for CAP leadership to track details of their overall flying effort. This tracking system has allowed determination of total hours flown down to the individual aircraft tail number and by mission type. Further degrading the ability to ascertain historical flying hour data, HQ CAP has had three different flying hour tracking systems in the past five years. These three different tracking systems were not automated or compatible with each other.

## QUANTITATIVE ANALYSIS

Quantitative analysis began by attempting to compare the CAP aircraft utilization rate (actual hours flown per year per aircraft) with those of comparable organizations. Specifically , we compared CAP to the following: general aviation, USAF Aero Club Program, United States Coast Guard (USCG) Auxiliary, and finally the Civil Air Search and Rescue Association (CASARA) of Canada.

### General Aviation

General aviation comparisons were made based upon data gathered by the General Aviation and Manufactures Association (GAMA). GAMA publishes the *General Aviation Statistical Databook* following the release of the FAA's *General Aviation and Air Taxi Activity and Avionics Survey and Aviation Forecast* publications. When using general aviation figures, we specifically used data pertaining to single engine (piston) aircraft with four or more seats, as the majority of CAP aircraft (94 percent) fit into this category.

**Table I.**

| 1996 GENERAL AVIATION PRIMARY USE DATA SINGLE ENGINE AIRCRAFT (4+ SEATS) | | | |
|---|---|---|---|
| Primary Use | Total Active Aircraft | Total Hours Flown | Average Hours per Aircraft |
| Public Use | 1,576 | 297,030 | 188.47 |
| Corporate | 1,143 | 177,208 | 155.04 |
| Business | 18,365 | 2,056,289 | 111.97 |
| Personal | 59,160 | 5,511,384 | 93.16 |
| Instructional | 6,691 | 2,085,513 | 311.69 |
| Aerial Assessment | 34 | 6,499 | 191.15 |
| Aerial Observation | 1,644 | 509,888 | 310.15 |
| Other | 2,635 | 247,659 | 93.99 |
| Sight-Seeing | 260 | 46,337 | 178.22 |
| Air Tours | 48 | 25,643 | 534.23 |
| Air Taxi | 462 | 224,448 | 485.82 |
| **TOTAL** | **92,018** | **11,187,898** | **121.58** |

Many CAP missions directly correlate to some primary use categories listed in Table I, but without a pre-determined weighting factor, this study's analysis was unable to determine the proper weighting to assign to each use in order to determine a proper utilization rate (average annual flying hours per aircraft). The lack of historical data made it impossible to determine a viable weighting factor. In the future, it may be possible to develop this factor, given the further population of data in the CAP Form 18 database. Only with future years of data would it be possible to develop a reliable set of data with which to correlate CAP aircraft flying hours (based on mission symbol) with primary use categories listed in Table I.

Discussions with representatives of the Aircraft Owner's and Pilot's Association (AOPA), Cessna Aircraft Company, and the Cessna Pilot's Association revealed that flying schools generally have the highest utilization rates for aircraft (300-400 aircraft annual flying hours per year). The reasoning for this is that they maximize their flying hours for profit. The same reasoning can be applied to the Air Taxi and Air Tours categories. Revenue is generated for each hour the aircraft is flying. Therefore, it is not surprising to see these primary use categories in the top three in Table I.

## Table II.

| 1996 General Aviation, Total Hours Flown in Each Flight Hour Range (Single engine, 4+ seats) | | | | |
|---|---|---|---|---|
| | Aircraft | % | Hours Flown | % |
| 1-50 Hours | 31,512 | 34.87 | 958,475 | 9.23 |
| 51-100 Hours | 22,352 | 24.73 | 1,572,728 | 15.14 |
| 101-150 Hours | 16,703 | 18.48 | 1,904,765 | 18.34 |
| 151-200 Hours | 6,875 | 7.61 | 1,124,740 | 10.83 |
| 201-300 Hours | 6,811 | 7.54 | 1,556,589 | 14.99 |
| 301-400 Hours | 3,267 | 3.61 | 1,070,563 | 10.31 |
| 401-500 Hours | 1,607 | 1.78 | 683,830 | 6.58 |
| 501-700 Hours | 1,617 | 1.79 | 895,170 | 8.62 |
| 701-1000 Hours | 786 | 0.87 | 643,272 | 6.19 |
| 1001-1300 Hours | 235 | 0.26 | 246,377 | 2.37 |
| 1301-1600 Hours | 42 | 0.05 | 59,126 | 0.57 |
| Over 1600 Hours | 184 | 0.20 | 566,466 | 5.45 |
| | | | | |
| **Total** | **90,374** | **100** | **10,386,931** | **100** |

**NOTE:** Total Aircraft differ 1.8 percent (92,018) from table I due to a standard error in the data gathering and estimation of values by the FAA and GAMA.

Analysis of the information provided in Table II shows that, for selected aircraft (single-engine, 4+ seats) in CY 96, 86 percent of the aircraft flew 54 percent of the total hours flown while operating within the 200 hours per year range. 93 percent of the aircraft flew 69 percent of the total hours flown while operating within the 300 hours per year range, and 97 percent of the aircraft flew 79 percent of the total hours flown while operating within the 400 hours per year range. There appears to be three break points: at the 151-200, 301-400, and 701-1000 hours range. Discussions with representatives of the Cessna Aircraft Company revealed that they do not endorse a specific annual flying hour rate for their aircraft nor does any other general aviation aircraft manufacturer. They further stated that, as long as the minimum required inspections are performed (100 hour inspection and annual inspection) and proper maintenance is performed, general aviation aircraft are capable of flying at any annual programmed rate. It is very difficult to determine if CAP is fully utilizing their aircraft, but actual CAP average utilization rates for CY 98 were 245 hours per year per aircraft (Table V)--greater than the 200 hour per year per aircraft level set by HQ CAP in 1995. It can be said that the current CAP fleet is experiencing greater utilization rates than 86 percent of comparable general aviation aircraft. Therefore, this analysis concluded that the 200 hours per year per aircraft is a reasonable rate for CAP to operate their corporate fleet of aircraft. However, CAP wing aircraft utilization rates ranged from 71 hours/year (New York) to 492 hours/year (Arkansas) and should be addressed by HQ CAP personnel.

**USAF Aero Club Program**

## Table III.

| | Aero Club FY 98 Flying Hours | | | | |
|---|---|---|---|---|---|
| | Sorties | Total Hours | T-1 Hours | T-2 Hours | T-3 Hours |
| C-172/T-41 | 26,450 | 40,706.62 | 26,410.30 | 4,309.00 | 9,987.32 |
| C-182 | 479 | 766.80 | 398.40 | 92.30 | 276.10 |
| **Total** | **26,929** | **41,473.42** | **26,808.70** | **4,401.30** | **10,263.42** |

## Table IV.

| | Aero Club FY 98 Utilization Rates | | | | |
|---|---|---|---|---|---|
| | Aircraft | Utilization Rate | T-1 Utilization Rate | T-2 Utilization Rate | T-3 Utilization Rate |
| C-172/T-41 | 99 | 411.18 | 266.77 | 43.53 | 100.88 |
| C-182 | 3 | 255.60 | 132.80 | 30.77 | 92.03 |
| **Total** | **102** | **406.60** | **262.83** | **43.15** | **100.62** |

**NOTE:** T-1 Hours: Hours flown where the primary purpose was training, leading to the issuance of a new rating or pilot certificate. This includes solo time flown for this purpose.
T-2 Hours: Hours flown where the primary purpose of the sortie was training conducted for currency, recurrency, annual, or aircraft checkout requirements. An instructor pilot need not be onboard to log this training.
T-3 Hours: Hours flown for other than T-1 or T-2 purposes. This includes recreation, business, TDY, etc., where training is not involved.

When we compared CAP to the USAF Aero Club Program, some Aero Club aircraft were not used for comparison due to several factors. The local club may have had the aircraft in storage (not on active flying status), bought or sold the airplane during the middle of the reporting period (limiting annual data recorded), or the aircraft was not on active flying status due to extensive maintenance being performed. For our analysis, we compared the overall Aero Club utilization rate to that of CAP. Additionally, we only considered Cessna 172/T-41 and Cessna 182 Aero club aircraft, the same type of aircraft that CAP primarily operates. The data in Tables III and IV reveal that CAP, in CY 98, did not utilize their aircraft to the same extent as the USAF Aero club program.

**United States Coast Guard (USCG) Auxiliary**

The United States Coast Guard (USCG) Auxiliary has 30,000 volunteers who contribute their time and resources to promote the Coast Guard and its missions, much the same relationship that CAP has with the Air Force. Volunteers provide 135 member-owned aircraft to perform some of the same functions as CAP listed on the following page.

| USCG Auxiliary Mission | Equivalent CAP Mission and Mission Symbol |
|---|---|
| Search and Rescue | Search and Rescue (A1) |
| Air Support of USCG Law Enforcement | Support to State/Local Agencies (B14) |
| Marine Environmental Protection | Damage Assessment (B13) |
| Ice Operations | Low-Level Survey (A4) |
| Logistics (Transportation of Personnel) | Official Conferences/Maintenance Flights (B8) |
| Training | Proficiency Flights/Training (B12) |

Further discussions with the Auxiliary revealed that they do not have aircraft available at all times due to the same aircraft availability issues experienced by CAP discussed later in the report. The Auxiliary is modeling their flying hour reimbursement policy after the CAP policy and recent Federal legislation has enabled the Auxiliary to work directly with state and local governments, much the same way CAP supports these organizations. Although the CAP utilization rate is comparable to the Auxiliary when we use only equivalent missions performed, CAP conducts many missions to a greater extent than those performed by the Auxiliary.

**Civil Air Search and Rescue Association (CASARA)**

Canada does not operate an equivalent organization to CAP. The National Search and Rescue Program, administered by the National Search and Rescue Secretariat, coordinates national search and rescue efforts. Air efforts are primarily performed by CASARA and the Department of National Defense. CASARA is a national organization of volunteer pilots, navigators, and spotters dedicated to promoting aviation safety and providing suitable personnel and aircraft for the conduct of air search and rescue support operations and training. CASARA performs missions equivalent to "A1" and "B12" missions performed by CAP. Further discussions with CASARA representatives revealed that their organization flew 4,580 hours in 1997 and that the organization registered 413 member-owned aircraft. However, due to the availability of pilots and aircraft, approximately 50 aircraft routinely respond to search and rescue missions when notified.

Neither the USCG Auxiliary nor CASARA own corporate aircraft. Their volunteer members provide private, member-owned aircraft. The controlling agency makes reimbursements for aircraft operating expenses based on aircraft type and local fuel costs as well as reimbursements for incidental expenses that members may incur. Although both the Auxiliary and CASARA perform some missions similar to CAP, they do not provide these services to the same extent of CAP and do not offer the capability to provide many of the other services provided by CAP.

**Table V.**

| Comparison of CAP Utilization Rate with Other Organizations | | | |
|---|---|---|---|
| **Organization** | **Aircraft** | **CY 98 Flying Hours** | **Utilization Rate** |
| Civil Air Patrol | 530 | 129,641 | 244.61 |
| USCG Auxiliary | 135 | 7,649 | 56.66 |
| CAP (Performing comparable USCG Auxiliary Missions) | 530 | 33,114 | 62.48 |
| CASARA (50 Aircraft) | 50 | 4,580 | 91.60 |
| CASARA (All 413 Aircraft) | 413 | 4,580 | 11.09 |
| CAP (Performing comparable CASARA Missions) | 530 | 22,223 | 41.93 |
| USAF Aero Club Program | 102 | 41,473 | 406.60 |
| General Aviation | 89,383 | 10,940,239 | 122.40 |

During the course of our research, we explored the Air Force Audit Agency (AFAA) estimation that CAP only required 330 aircraft. Using CY 96 data, they determined this number by dividing 66,000 hours flown (CAP and member-owned aircraft) on CAP A1, A3, and B12 missions by the CAP National Executive Committee established utilization rate of 200 hours per year per aircraft. It implied that CAP only required an aircraft fleet to support the three Air Force assigned missions, but failed to identify that these 66,000 hours only reflect the number of aircraft to perform CAP A1, A3, and B12 missions. Unfortunately, the AFAA did not address the required CAP aircraft fleet to support other Air Force assigned missions and CAP missions (Appendix B). Since data for CY 98 is incomplete/not available, we cannot arrive at an appropriate requirement for CY 96. However, if we use that same method of calculating an aircraft requirement as the AFAA, using CY 98 data (Appendix D), we estimated that CAP would require:

353 aircraft for "A" missions (Air Force Assigned Reimbursable Missions)
(70,637.23 total hours ÷ 200 hours per year per aircraft)
207 aircraft for "B" missions (Air Force Assigned Nonreimbursable Missions)
(41,356.50 total hours ÷ 200 hours per year per aircraft)
88 aircraft for "C" and "L" missions (CAP Corporate Missions)
(17,646.96 total hours ÷ 200 hours per year per aircraft)

**648 total aircraft**

This total of 648 aircraft would be an accurate figure if aircraft were assigned exclusively to only one type of mission. However, cross-utilization of aircraft to support all missions is a certainty, dropping that total to some lower number. A cross-utilization "factor" is undeterminable and, therefore, the magnitude of the lower number is also undeterminable, although obviously something less than 648 aircraft.

## QUALITATIVE ANALYSIS

The challenge of estimating the required number of aircraft needed for CAP to perform its missions is complicated by the fact that this determination cannot be made with only quantitative data. Qualitative data must also be considered. Interviews with CAP personnel highlighted many of these qualitative issues. The most crucial question is apparent in the realm of search and rescue/disaster relief (SAR/DR) missions: "what price is assigned to someone's life?" Although it is impossible to place a value on human life, all practical considerations must be taken into account. CAP Mission Coordinators (a qualified CAP member who acts as the senior CAP representative while conducting CAP missions or in support of another controlling agency such as the Federal Emergency Management Agency (FEMA) or the Red Cross) are responsible for all CAP assets under their control. They use a probability of detection, expressed as a percentage, to establish their confidence in locating an objective. Some factors that go into determining this probability are: number of aircraft/crews available, aircraft response time, amount of area to be searched, airspace restrictions, weather, terrain, time of day/night, and crew rest/fatigue issues. Each mission is unique because of the many combinations of these factors and it is not possible to determine how many CAP aircraft would respond to each individual mission. It would be too simple to state that, given enough aircraft, CAP could locate an objective or perform their mission in minimum time. We concluded that there is no "magic" formula that can account for all the aforementioned factors, but they must be considered in addition to any quantitative issues in developing an aircraft requirement.

Is it more economical to operate 10 airplanes instead of 15 in one particular state, or will the "extra" 5 aircraft significantly increase the CAP capability to perform all of its three missions? CAP Wing Commanders have the responsibility of distributing CAP aircraft throughout their state and must take into account all of the qualitative factors previously mentioned. Of particular concern is response time in states such as Alaska, Montana, Texas, and Wyoming that have low populations per area and/or occupy a relatively large area. CAP units are formed not necessarily where they are needed, but in areas where there is a sufficient population base from which to draw members. Aircraft are dispersed where members have ready access to them and can respond prudently to mission taskings. During 1998, the Texas Wing set a record for annual hours flown, due in part to drought conditions that existed throughout the entire state. All the Texas CAP aircraft were flown from their home bases to locations throughout the state, logging more than 1,750 hours in support of state funded fire-watch missions. In addition, the aircraft were operated as airborne communication relay stations for firefighters on the ground. The actions of CAP were directly responsible for saving $100 million in property losses[1]. It is impossible to determine the number of aircraft <u>required</u> to meet the needs of missions like these. The "needs" are an unknown quantity. However, logic dictates that <u>all available</u> aircraft be used to ensure the best possible outcome for tasks resulting in dire consequences.

Further complicating this study's analysis is the fact that SAR/DR missions are impossible to predict. CAP has provided aerial assessments of forest fires in Florida, California, and Texas; floods along the Mississippi River; and hurricane damage along the Atlantic Ocean and Gulf of Mexico coastal areas. On a recent mission to search for two lost hikers in January 1999, the

[1] Civil Air Patrol News, Dec 98

Colorado Wing contributed 15 CAP volunteers, including one aircrew (pilot, scanner, and observer) and one aircraft. The aircrew spotted the missing hikers within the first two days of commencing the search. According to Mesa Verde National Park Rangers, "[the missing hikers] would have easily died of hypothermia had they not been rescued."[2] Contrast this to the search for the missing USAF A-10 throughout Colorado. During this event alone, CAP flew 503.6 hours and over 280 sorties[3]. Although missions such as the ones described above were the exception rather than the rule, they do point out the varying scope and unpredictability of missions performed by CAP. They further accentuate the impossibility of analytically calculating a "right sized" aircraft fleet based on nebulous operational taskings.

## OTHER ISSUES

SAR is not the only mission that CAP performs with aircraft, although it is their most visible. Historically, CAP has flown 85 percent of inland search and rescue (SAR) missions in the continental United States, authorized by the Air Force Rescue Coordination Center. Discussions with CAP personnel revealed that, historically, CAP performs approximately 30 percent of their missions in Search and Rescue. It is very difficult for local agencies to conform to a national requirement for SAR activities in accordance with the International Civilian Aviation Organization (international organization chartered to establish minimum standards for a nation's SAR program). With the numerous makes and models of aircraft in operation today, national standards exist to ensure pilots are certified in a certain make and model for safety and insurance requirements. This is to say a pilot qualified to fly a Cessna 172 is not qualified to fly a Piper Tomahawk without proper minimum instruction time by a qualified instructor and a qualifying check-ride, although both aircraft are classified as single engine-land aircraft. CAP alleviates this problem by providing a standardized platform for volunteer pilots to operate. CAP operates 298 Cessna-172 aircraft and 198 Cessna-182 aircraft, representing 94 percent of their total aircraft fleet. Although not identical, the C-172 and C-182 aircraft are viewed as nearly identical for qualification purposes and basic handling characteristics. Additionally, for a CAP volunteer to operate a member-owned aircraft for official CAP business, the mission pilot (pilot in command) must be fully qualified in that aircraft. Furthermore, to become fully qualified in that aircraft, the pilot must find a CAP pilot who is qualified in that type of aircraft to perform the check-ride. Again, going back to the many makes and models of aircraft available and required equipment to perform the mission, this may make it very difficult for CAP pilots to operate their privately owned aircraft (CAP member-owned aircraft total 4700) on CAP missions. Aircraft owners who volunteer their aircraft (and it is strictly on a volunteer basis) retain control over the aircraft at all times and can refuse to allow their aircraft be utilized or allow other pilots and crews to fly their aircraft.

[2] Civil Air Patrol News, Jan 99

[3] Air Force Rescue Coordination Center, Langley AFB, VA.

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# CHAPTER 4

# CONCLUSIONS AND RECOMMENDATIONS

## CONCLUSIONS

1. No other comparable organizations were identified that perform the diversity and extent of Civil Air Patrol missions.

2. Although a CAP self-imposed aircraft utilization rate of 200 hours per year per aircraft seems reasonable (see discussion on page 12), this study could not validate that rate nor derive another with any better confidence in accuracy, due to data deficiencies and numerous variables both tangible and intangible. Based on CY 98 data, it appears that CAP may, in fact, be operating at a utilization rate of 245 hours per year per aircraft, a greater utilization rate than 86 percent of comparable general aviation aircraft. Since establishing an accurate utilization rate is key to development of a requirement formula, any valid, statistically relevant CAP aircraft fleet size determination was impossible.

3. There is a large variation in individual CAP wing aircraft utilization rates (the average number of aircraft flying hours per year per aircraft), ranging from 71 hours/year (New York) to 492 hours/year (Arkansas). Assuming that the 200 hours per year per aircraft utilization rate is reasonable, it is reasonable to conclude that the current fleet size is viable. This analysis determined that CAP would actually require 648 aircraft to operate at a 200 hour per year per aircraft--118 more aircraft than they currently own. Lack of derogatory documentation about the performance of CAP indicates that CAP has been successful at meeting assigned tasks with its current fleet of 530 aircraft. CAP's ability to field aircraft is the major contributing component for it to conduct operations.

4. In CY 98, 87 percent of CAP missions were for Air Force assigned (reimbursable and nonreimbursable) missions. According to AFPD 36-50, *Civil Air Patrol*, Attachment 1, paragraph A1.1 "Compliance with policy for employing the CAP will be assessed by taking flying-hour measurements from existing reports in the area of Air Force-assigned missions flown and total CAP missions . . . Efficient Air Force use of CAP will be reflected in a higher annual percentage of Air Force-assigned mission flying hours in relation to total CAP flying hours." Continued efficient use of CAP will be determined by monitoring and comparing annual flying hours by this standard of annual percentage of Air Force assigned mission flying hours.

5. While HQ CAP personnel now believe they have a system to accurately track CAP flying hours, the CAP Form 18 database (Microsoft Access® database that tracks all aircraft flying hours by wing, aircraft tail number and mission symbol) does not include the ability to document individual CAP aircraft flights. This data will become more accurate as wing personnel become more familiar with the new database and it is populated with additional flying hour data in the following years.

## RECOMMENDATIONS

1. CAP establish an operational requirements document at each of the levels of command (squadron, wing, region, national) to help identify resources needed to achieve national goals and objectives. **(OPR: HQ CAP)**

2. Develop a requirements oversight council comprised of CAP-USAF and HQ CAP/DO personnel to review, justify, validate, and publish a national operational requirements document. AFPD 36-50, paragraph 7 states: "Headquarters US Air Force (USAF), through Air University and CAP-USAF, is responsible for establishing CAP support programs, identifying requirements, and executing programs in compliance with this directive." **(OPR: CAP-USAF and HQ CAP/DO)**

3. CAP wing/region commanders develop an employment plan for their aircraft and other resources. These individuals will be the most knowledgeable about the unique factors affecting the employment of aircraft within their respective wing or region. They will best be able to consider these factors along with current or planned Memorandum of Understandings (MOU) with state agencies. These employment plans should be forwarded to HQ CAP for verification and incorporated into national CAP goals and objectives. **(OPR: HQ CAP)**

4. Expand the CAP Form 18 database to include the ability to document individual CAP aircraft flights. At a minimum, information tracked should include sortie duration, mission symbol/mission number, mission performed, and agency supported. **(OPR: HQ CAP/DO)**

5. Address possible re-distribution of aircraft from wings with lower average utilization rates (the average number of aircraft flying hours per year) to wings with higher average utilization rates. **(OPR: HQ CAP)**

## DISTRIBUTION

Refer to attached Standard Form 298.

# APPENDIX A

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# APPENDIX B

# CAP MISSION SYMBOLS

(Extracted from CAPR 60-1 Attachment 1)

| Mission Symbol | Description |
|---|---|
| **USAF Assigned Reimbursable Missions** | |
| A1 | AFRCC (Air Force Rescue Coordination Center) SAR missions |
| A2 | AFNSEP (Air Force National Security Emergency Preparedness Office) missions (NOTE 1) |
| A3 | Counterdrug missions |
| A4 | Missions specifically approved by the Air Force (i.e., low-level survey, courier, etc.) |
| A5 | SAR/DR training/evaluation missions/ CAPR 60-2 inspections (NOTE 2) |
| A6 | AFROTC orientation flights including flights to and from the orientation site |
| A7 | CAPFs 5 & 91 evaluation and National Check Pilot Standardization Course and flight clinics |
| **Air Force Assigned Nonreimbursable Missions** (may be reimbursed by agencies) | |
| B8 | Squadron or higher official conferences or meetings, maintenance flights |
| B9 | Red Cross missions |
| B10 | FEMA (Federal Emergency Management Agency) missions |
| B11 | NOAA & NWS missions |
| B12 | Mission pilot proficiency flights and SAR/DR training IAW CAPR 50-15 |
| B13 | Support to federal or national relief agencies with an Air Force approved MOU |
| B14 | Support to state, county and local agencies with an Air Force approved MOU |
| B15 | Cadet orientation flights IAW CAPF 77 |
| B16 | Cadet flights: training, flight encampments/academies, cadet encampments, IACE |
| B17 | 911T missions |
| B18 | CAPFs 5 & 91 evaluation and NCPSC and flight clinics not flown under an AF mission number |
| B99 | Other missions specifically approved by the USAF (i.e., media public official, etc.; all requests for approval will be sent to CAP-USAF region commander) |
| **CAP Corporate Missions** | |
| C1 | Proficiency and training flights not designated as an USAF assigned mission |
| C2 | Support to state, county and local agencies not designated as an USAF assigned mission |
| C3 | Other CAP flying |
| **Other** | |
| L1 | CAP & CAP-USAF liaison officer flying |

**Note 1:** Does not include FEMA (B10) missions, Red Cross (B9) missions, or support to other federal or national relief agencies with an Air Force approved MOU (B13)

**Note 2:** CAPR 60-2 inspections are only authorized as an A5 mission if pre-approved in advance by the CAP-USAF Liaison Region.

# APPENDIX C

# CAP FLYING HOUR DATA

| CY | SAR/DR hours flown | Counter Drug (CD) hours flown | Total SAR/DR and CD hours |
|---|---|---|---|
| 1998[4] | 19,459 | 36,791 | 56,250 |
| 1997 | 25,033 | 39,681 | 64,714 |
| 1996 | 26,808 | 39,115 | 65,923 |
| 1995 | 24,587 | 31,803 | 56,390 |
| 1994 | 22,712 | 34,305 | 57,017 |
| 1993 | 14,442[5] | 20,257 | 34,699[e] |
| 1992 | 13,683[e] | 19,628 | 33,311[e] |

[4] In Jan 98, CAP implemented Form 18 Data Tracking utilizing an Access Database. Consequently, total hours flown in CAP is available.

[5]These hours do not include SAR/DR training hours flown, as the data was not available.

# APPENDIX D

# Comparison of CAP FY/CY 98 Flying Hours

| | CY 98 | | | FY 98 | | |
|---|---|---|---|---|---|---|
| | CAP Aircraft Flying Hours | Member Aircraft Flying Hours | Total Flying Hours | CAP Aircraft Flying Hours | Member Aircraft Flying Hours | Total Flying Hours |
| A1 | 8737.37 | 606.7 | 9344.07 | 8114.97 | 543.9 | 8658.87 |
| A2 | 319.62 | 11 | 330.62 | 300.40 | 11 | 311.40 |
| A3 | 33906.62 | 3156 | 37062.62 | 36791.50 | 4929.7 | 41721.20 |
| A4 | 2183.22 | 294.3 | 2477.52 | 2284.82 | 292.1 | 2576.92 |
| A5 | 11698.18 | 1074 | 12772.18 | 11344.19 | 1022.65 | 12366.84 |
| A6 | 4644.56 | 195.9 | 4840.46 | 3748.45 | 196.2 | 3944.65 |
| A7 | 3560.06 | 249.7 | 3809.76 | 3337.13 | 228.7 | 3565.83 |
| **A TOTAL** | **65,049.63** | **5,587.60** | **70,637.23** | **65,921.46** | **7,224.25** | **73,145.71** |
| | | | | | | |
| B8 | 6523.95 | 359.5 | 6883.45 | 5753.81 | 347.7 | 6101.51 |
| B9 | 482.22 | 7.1 | 489.32 | 399.70 | 7.1 | 406.80 |
| B10 | 360.67 | 11.7 | 372.37 | 330.17 | 10.7 | 340.87 |
| B11 | 138.00 | 5 | 143.00 | 122.70 | 5 | 127.70 |
| B12 | 12254.51 | 624.5 | 12879.01 | 10675.99 | 545.7 | 11221.69 |
| B13 | 889.96 | 44 | 933.96 | 858.06 | 44 | 902.06 |
| B14 | 3796.90 | 51.5 | 3848.40 | 3601.70 | 51.5 | 3653.20 |
| B15 | 6213.71 | 305.4 | 6519.11 | 5608.55 | 297.9 | 5906.45 |
| B16 | 4470.14 | 142.9 | 4613.04 | 4350.34 | 142.1 | 4492.44 |
| B17 | 63.80 | 0 | 63.80 | 79.60 | 0 | 79.60 |
| B18 | 3794.08 | 119.8 | 3913.88 | 3502.95 | 116.4 | 3619.35 |
| B99 | 668.86 | 28.3 | 697.16 | 615.16 | 28.3 | 643.46 |
| **B TOTAL** | **39,656.80** | **1,699.70** | **41,356.50** | **35,898.73** | **1,596.40** | **37,495.13** |
| | | | | | | |
| C1 | 11492.35 | 791.3 | 12283.65 | 10090.94 | 764.2 | 10855.14 |
| C2 | 612.76 | 27.8 | 640.56 | 540.16 | 27.8 | 567.96 |
| C3 | 693.67 | 64.8 | 758.47 | 649.07 | 61.3 | 710.37 |
| L1 | 3621.38 | 342.9 | 3964.28 | 3601.68 | 340.1 | 3941.78 |
| **C+L TOTAL** | **16,420.16** | **1,226.80** | **17,646.96** | **14,881.85** | **1,193.40** | **16,075.25** |
| | | | | | | |
| **TOTAL** | **121,126.59** | **8,514.10** | **129,640.69** | **116,702.04** | **100,14.05** | **126,716.09** |

**NOTE:** CAP reported 126,716 flying hours as FY 98 data. Our analysis used CY 98 data and we calculated that CAP flew 129,641 hours in CY 98 (2.3 percent difference). Therefore, we concluded that CY flying hour data in the Form 18 database would provide sufficient reliability for comparison when necessary.

**NOTE:** Member-owned aircraft contributed 6.6 percent of CY 98 total aircraft flying hours.

# APPENDIX E

# CY 98 CAP "A" Mission Flying Hours by Wing

| Wing | A1 | A2 | A3 | A4 | A5 | A6 | A7 | USAF Reimbursable |
|---|---|---|---|---|---|---|---|---|
| AK | 509 | 0 | 37.9 | 3.3 | 754.3 | 4 | 37.7 | 1346.2 |
| AL | 119.9 | 0 | 1946.5 | 69.8 | 225.2 | 231.4 | 543.47 | 3136.27 |
| AR | 250 | 0 | 1104.1 | 54.9 | 592.1 | 67.2 | 206.3 | 2274.6 |
| AZ | 549.2 | 21.7 | 537.3 | 63.4 | 517.1 | 99.8 | 1.6 | 1790.1 |
| CA | 393.1 | 9.4 | 1426.2 | 95.8 | 385.3 | 91.6 | 169 | 2570.4 |
| CO | 197.5 | 0 | 256.1 | 9.4 | 488 | 199.8 | 202.1 | 1352.9 |
| CT | 44.9 | 0 | 293 | 29.6 | 61 | 25.5 | 61.1 | 515.1 |
| DC | 19.3 | 0 | 72.4 | 0 | 120.8 | 70.7 | 1.4 | 284.6 |
| DE | 23.9 | 0 | 1139.7 | 0 | 75.4 | 11.6 | 31 | 1281.6 |
| FL | 645.9 | 105.2 | 1887.7 | 18.7 | 362.6 | 169.1 | 253.8 | 3443 |
| GA | 211.7 | 3.5 | 672 | 29.1 | 416.1 | 142 | 87.1 | 1561.5 |
| GLR | 0 | 0 | 83.1 | 0 | 0 | 0 | 0 | 83.1 |
| HI | 12.4 | 0 | 2783.4 | 239.5 | 218.8 | 40.3 | 5 | 3299.4 |
| IA | 88.3 | 0 | 143 | 145.9 | 241.9 | 56.1 | 1.9 | 677.1 |
| ID | 72.5 | 0 | 266.3 | 22.3 | 98.8 | 82.6 | 15.9 | 558.4 |
| IL | 20.4 | 0 | 248 | 17.3 | 183.6 | 235 | 159.8 | 864.1 |
| IN | 103.7 | 11.4 | 1043.2 | 17.9 | 202.7 | 87.2 | 84 | 1550.1 |
| KS | 34.3 | 2 | 189.7 | 12.5 | 62.5 | 58.7 | 51.3 | 411 |
| KY | 114.8 | 0 | 2149.2 | 0 | 207.3 | 16.4 | 133.4 | 2621.1 |
| LA | 170.9 | 0 | 1502.9 | 101.7 | 474.9 | 67.1 | 39.8 | 2357.3 |
| MA | 138.8 | 3.6 | 192.2 | 15.4 | 66.6 | 64.2 | 29.5 | 510.3 |
| MD | 100.2 | 0 | 171.8 | 0 | 379.3 | 3.5 | 23 | 677.8 |
| ME | 75.7 | 58 | 1986.1 | 22.1 | 210.1 | 3.7 | 47.6 | 2403.3 |
| MER | 0 | 0 | 0 | 0 | 13.8 | 0 | 0 | 13.8 |
| MI | 119 | 3.9 | 206 | 9.9 | 173 | 281 | 99 | 891.8 |
| MN | 448.5 | 0 | 370.1 | 53.5 | 323.3 | 115.9 | 49.3 | 1360.6 |
| MO | 260.9 | 0 | 180.8 | 9.5 | 160.4 | 41 | 0 | 652.6 |
| MS | 51.1 | 0 | 379.4 | 94.1 | 129.4 | 131.8 | 52.1 | 837.9 |
| MT | 38 | 0 | 381.3 | 22 | 137.2 | 45.1 | 31 | 654.6 |
| NC | 212.4 | 3.3 | 553.5 | 49 | 356.8 | 113.9 | 19.7 | 1308.6 |
| ND | 92.6 | 0 | 366.9 | 5.1 | 124.3 | 20.6 | 14.7 | 624.2 |

| Wing | A1 | A2 | A3 | A4 | A5 | A6 | A7 | USAF Reimbursable |
|---|---|---|---|---|---|---|---|---|
| NE | 59.2 | 0 | 209.8 | 149.4 | 80.5 | 132 | 31.4 | 662.3 |
| NER | 15.6 | 0 | 29.1 | 0 | 0 | 2.4 | 2.3 | 49.4 |
| NH | 24.45 | 0 | 122.8 | 0 | 183.57 | 45.48 | 19.94 | 396.24 |
| NHQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NJ | 94.8 | 5.8 | 572.1 | 6.7 | 92.3 | 11.4 | 35.1 | 818.2 |
| NM | 504.22 | 29.6 | 2091.36 | 79.02 | 578.69 | 108.92 | 104.03 | 3495.84 |
| NV | 368.7 | 0 | 888.8 | 24.8 | 180 | 0 | 0 | 1462.3 |
| NY | 50.3 | 14.7 | 52.4 | 106.1 | 60.4 | 58.3 | 42.2 | 384.4 |
| OH | 75.65 | 3.62 | 102.66 | 41.6 | 65.53 | 98.8 | 54.33 | 442.19 |
| OK | 188.5 | 0 | 320 | 53.4 | 193.4 | 111.1 | 6.9 | 873.3 |
| OR | 122.7 | 15.4 | 415.5 | 218 | 335.4 | 165.4 | 51.7 | 1324.1 |
| PA | 101.1 | 6.6 | 1678.4 | 42.8 | 522.3 | 28.2 | 139.9 | 2519.3 |
| PR | 0 | 0 | 341.6 | 6.1 | 42.2 | 0 | 45.7 | 435.6 |
| RI | 24.1 | 0 | 80.7 | 37.9 | 44.1 | 5 | 34.6 | 226.4 |
| SC | 159.8 | 0 | 40.8 | 0 | 479.9 | 384.2 | 142.6 | 1207.3 |
| SD | 168.3 | 0 | 626 | 65 | 69 | 24.7 | 19.6 | 972.6 |
| SWR | 11.2 | 0 | 57.1 | 0 | 52.3 | 27.2 | 14.1 | 161.9 |
| TN | 41.4 | 0 | 298.6 | 1.5 | 104.7 | 123.1 | 93.8 | 663.1 |
| TX | 974.7 | 0 | 3188.8 | 156.6 | 501.4 | 435.3 | 147.2 | 5404 |
| UT | 294.8 | 0 | 807.9 | 0 | 266 | 139.8 | 0 | 1508.5 |
| VA | 279.35 | 0 | 314.5 | 3.4 | 356.89 | 159.96 | 216.99 | 1331.09 |
| VT | 1.3 | 12.6 | 62.2 | 0 | 82 | 13.8 | 21.2 | 193.1 |
| WA | 80.8 | 13.6 | 915.1 | 119.6 | 176.1 | 73.6 | 32.4 | 1411.2 |
| WI | 499.5 | 6.7 | 1074.6 | 143.4 | 343.2 | 55.5 | 4.2 | 2127.1 |
| WV | 7.5 | 0 | 189.3 | 10.5 | 115.8 | 21.4 | 66.8 | 411.3 |
| WY | 77.2 | 0 | 12.7 | 0 | 83.9 | 38.1 | 31.2 | 243.1 |
| | | | | | | | | |
| **Total** | **9,344.07** | **330.62** | **37,062.62** | **2,477.52** | **12,772.18** | **4,840.46** | **3,809.76** | **70,637.23** |

## APPENDIX F

# CY 98 CAP "B" Mission Flying Hours by Wing

| Wing | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 | B16 | B17 | B18 | B99 | USAF Non Reimbursable |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AK | 281.2 | 3.9 | 7.6 | 8.6 | 564.4 | 23.6 | 3.8 | 62.4 | 65.9 | 0 | 307.7 | 151.2 | 1480.3 |
| AL | 310.9 | 4.8 | 24.4 | 6.8 | 998.7 | 0 | 17.5 | 50 | 238.3 | 0 | 39.2 | 3.1 | 1693.7 |
| AR | 452.3 | 0 | 0 | 14.9 | 369.2 | 26.1 | 195.8 | 152 | 36.7 | 0 | 8.7 | 13.3 | 1269 |
| AZ | 137.4 | 5.2 | 4.3 | 0 | 739.3 | 146.5 | 106.2 | 216.3 | 103 | 0 | 277.9 | 43.5 | 1779.6 |
| CA | 245.2 | 14.8 | 38.1 | 3.5 | 395.9 | 2.1 | 16.8 | 104.4 | 39.1 | 0 | 144.3 | 22.3 | 1026.5 |
| CO | 185.3 | 0 | 0 | 0 | 497.7 | 2.2 | 10.4 | 397.3 | 15 | 7.2 | 192.2 | 16 | 1323.3 |
| CT | 37.4 | 0 | 0 | 0 | 2 | 0 | 0 | 53.7 | 229.4 | 0 | 11 | 23.8 | 357.3 |
| DC | 36.2 | 0 | 0 | 0 | 107.5 | 92.7 | 0 | 21.6 | 16.1 | 0 | 50.1 | 0 | 324.2 |
| DE | 10.9 | 0 | 1.6 | 3.5 | 1.2 | 62.5 | 195.1 | 53.4 | 2.4 | 0 | 5.2 | 0 | 335.8 |
| FL | 224.8 | 3.8 | 2.9 | 21.4 | 253.4 | 16.5 | 494.4 | 356.2 | 115.4 | 8.3 | 170.6 | 3.7 | 1671.4 |
| GA | 205.2 | 0.9 | 10.9 | 14.8 | 224 | 0 | 82.3 | 221.7 | 131.6 | 1.7 | 205.5 | 47.9 | 1146.5 |
| GLR | 0 | 0 | 0 | 0 | 5.5 | 0 | 18.4 | 0 | 0 | 0 | 0 | 0 | 23.9 |
| HI | 15.2 | 0 | 1.2 | 0 | 3.8 | 0 | 0 | 43.7 | 0 | 0 | 16.7 | 0 | 80.6 |
| IA | 64.6 | 11.12 | 14.6 | 0 | 226.2 | 0 | 0 | 56.3 | 25.9 | 0 | 80.4 | 5.4 | 484.52 |
| ID | 2.4 | 10.6 | 16.2 | 3.8 | 137.8 | 0 | 0 | 63.6 | 0 | 0 | 16.4 | 51.5 | 302.3 |
| IL | 201 | 5.4 | 2.8 | 0 | 136.8 | 0 | 0 | 424.1 | 535.6 | 0 | 29.8 | 0 | 1335.5 |
| IN | 16.5 | 0 | 0 | 0 | 108 | 3.1 | 0 | 143.4 | 0 | 0 | 7.8 | 4.2 | 283 |
| KS | 38.4 | 31.5 | 0 | 0 | 35.6 | 1.5 | 3.5 | 54.1 | 116.4 | 0 | 11.5 | 18.8 | 311.3 |
| KY | 139.4 | 0.8 | 0 | 7.4 | 317.2 | 0 | 10.7 | 127 | 9.6 | 0 | 7.2 | 1.5 | 620.8 |
| LA | 155.5 | 1 | 1.8 | 0 | 41.2 | 1.3 | 1.4 | 93.4 | 76.7 | 9.8 | 41.7 | 10.8 | 434.6 |
| MA | 84.2 | 1.1 | 16.3 | 0 | 64.6 | 12 | 11.4 | 103.6 | 180.4 | 0 | 80.6 | 8.3 | 562.5 |
| MD | 264.8 | 0 | 0 | 0 | 267.6 | 7.8 | 409.1 | 311.8 | 295.1 | 0 | 191.6 | 0 | 1747.8 |
| ME | 280.54 | 56.3 | 3.5 | 2 | 109.46 | 13.8 | 13.9 | 137.1 | 78.4 | 0 | 69.4 | 20.3 | 784.7 |

| Wing | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 | B16 | B17 | B18 | B99 | USAF Non Reimbursable |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MER | 20.5 | 0 | 0 | 0 | 1.3 | 0 | 0 | 0 | 0 | 0 | 1.4 | 0 | 23.2 |
| MI | 75.6 | 13.3 | 19.3 | 0 | 168.6 | 27.3 | 1.7 | 159.1 | 46 | 0 | 14.9 | 11.5 | 537.3 |
| MN | 286.7 | 0 | 9.9 | 2.3 | 977.3 | 31.8 | 1.7 | 139.4 | 465.3 | 13 | 252.3 | 11.8 | 2191.5 |
| MO | 61.6 | 6.8 | 0 | 0 | 27.4 | 0 | 0 | 54.7 | 81.4 | 3.6 | 46.3 | 0 | 281.8 |
| MS | 96.7 | 17.9 | 33.6 | 9 | 128.8 | 13.3 | 89.1 | 44 | 18 | 0 | 35.2 | 3.7 | 489.3 |
| MT | 28.1 | 0.5 | 0 | 0 | 16.3 | 0 | 0.8 | 27.4 | 1.7 | 0 | 2.8 | 0 | 77.6 |
| NC | 127.4 | 3 | 13.7 | 8.3 | 565.5 | 15 | 104.8 | 77 | 12.1 | 2.4 | 98.7 | 25.9 | 1053.8 |
| ND | 143.7 | 1.4 | 0 | 0 | 88 | 0 | 38.2 | 79.7 | 7.6 | 3.1 | 68.5 | 1.6 | 431.8 |
| NE | 33.2 | 8.9 | 18.9 | 0 | 357.3 | 0 | 0 | 57.9 | 0 | 0 | 30 | 8.5 | 514.7 |
| NER | 12.5 | 2.9 | 9.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9.8 | 3.7 | 38.7 |
| NH | 43.52 | 0 | 0 | 0 | 102.92 | 0 | 1.2 | 34.44 | 8.64 | 0 | 34.48 | 2.9 | 228.1 |
| NHQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NJ | 77.8 | 0 | 0 | 0 | 40.6 | 0 | 0 | 134.5 | 220.5 | 0 | 43.4 | 5.5 | 522.3 |
| NM | 123.66 | 35.58 | 11.17 | 1.5 | 104.75 | 94.8 | 20.4 | 85.72 | 196.2 | 0 | 59.49 | 37.06 | 770.33 |
| NV | 103.8 | 0 | 0 | 0 | 2.9 | 0 | 0 | 68.1 | 0 | 0 | 101.2 | 0 | 276 |
| NY | 47.5 | 116.7 | 55.8 | 9.6 | 150.3 | 2.9 | 0 | 89.3 | 8.6 | 0 | 0 | 3.6 | 484.3 |
| OH | 63.71 | 3.22 | 0 | 0 | 421.4 | 38.26 | 0.3 | 69.35 | 9 | 0 | 31.11 | 12.3 | 648.65 |
| OK | 109.3 | 3.4 | 8.8 | 0 | 403 | 94.8 | 3.4 | 112.7 | 15.9 | 9.8 | 95.7 | 0 | 856.8 |
| OR | 116.7 | 1.1 | 0 | 0 | 278 | 3.7 | 4.1 | 114.1 | 25.6 | 1.7 | 41.9 | 11.1 | 598 |
| PA | 300.1 | 18.3 | 1.4 | 0 | 511.5 | 25.2 | 8.6 | 353.6 | 213.5 | 0.8 | 117.8 | 6.1 | 1556.9 |
| PR | 2.7 | 48.3 | 1.8 | 6.4 | 22.4 | 18 | 0 | 111.1 | 0 | 0 | 1.8 | 0 | 212.5 |
| RI | 15.2 | 0 | 1.2 | 0 | 67.3 | 0 | 0 | 25.7 | 149.4 | 0 | 13.4 | 0.8 | 273 |
| SC | 324.2 | 0 | 16.3 | 0 | 111.8 | 0 | 53.6 | 127.3 | 6.9 | 0 | 80.6 | 1.5 | 722.2 |
| SD | 31.9 | 0 | 0 | 12.1 | 93.5 | 0 | 2.4 | 56.9 | 0 | 0 | 45.2 | 0 | 242 |
| SWR | 97.8 | 7 | 0 | 0 | 14.4 | 0 | 0 | 0 | 0 | 0 | 0 | 1.6 | 120.8 |
| TN | 67.3 | 0.7 | 0 | 0 | 21.6 | 0 | 9.3 | 107.7 | 99.5 | 0 | 18.9 | 15 | 340 |
| TX | 428.3 | 0.3 | 0 | 0 | 358.8 | 150.3 | 1778.9 | 281.6 | 167.8 | 2.4 | 296.5 | 2.8 | 3467.7 |

| Wing | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 | B16 | B17 | B18 | B99 | USAF Non Reimbursable |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UT | 118.9 | 0 | 2.3 | 0 | 215.9 | 0 | 51.8 | 176.9 | 37.4 | 0 | 36.1 | 0 | 639.3 |
| VA | 240.22 | 2.5 | 2.6 | 0 | 738.38 | 0 | 1.2 | 234.3 | 14.8 | 0 | 42.4 | 5 | 1281.4 |
| VT | 12.6 | 0 | 0 | 0 | 14.2 | 0 | 4.3 | 65.2 | 86.1 | 0 | 20.7 | 0.6 | 203.7 |
| WA | 61.6 | 21 | 10.7 | 0 | 204.9 | 0 | 0 | 183.6 | 0 | 0 | 85 | 67.9 | 634.7 |
| WI | 126.2 | 10.5 | 7.3 | 1.7 | 795.3 | 0 | 25.5 | 99.6 | 368.2 | 0 | 165.6 | 4 | 1603.9 |
| WV | 71.8 | 4.6 | 0 | 0 | 159.2 | 6.9 | 56.4 | 82.7 | 41.9 | 0 | 48.2 | 7.1 | 478.8 |
| WY | 23.3 | 10.2 | 1.6 | 5.4 | 108.4 | 0 | 0 | 18.4 | 0 | 0 | 9 | 0 | 176.3 |
| **Total** | **6,883.45** | **489.32** | **372.37** | **143** | **12,879.01** | **933.96** | **3,848.4** | **6,519.11** | **4,613.04** | **63.8** | **3913.88** | **697.16** | **41356.5** |

# APPENDIX G

# CY 98 CAP "C" Mission Flying Hours by Wing

| Wing | C1 | C2 | C3 | CAP Corporate | L1 |
|---|---|---|---|---|---|
| AK | 442.5 | 0 | 21.7 | 464.2 | 72.3 |
| AL | 745.7 | 0 | 5.8 | 751.5 | 25 |
| AR | 639.5 | 0 | 0 | 639.5 | 246.5 |
| AZ | 952.8 | 1.3 | 5.7 | 959.8 | 107.7 |
| CA | 358.4 | 19.1 | 103.7 | 481.2 | 56 |
| CO | 196 | 8 | 6.5 | 210.5 | 247.2 |
| CT | 37.3 | 0 | 6 | 43.3 | 0 |
| DC | 80 | 0 | 0 | 80 | 5.9 |
| DE | 22.9 | 22 | 0 | 44.9 | 1.2 |
| FL | 419.1 | 307.4 | 21.6 | 748.1 | 0 |
| GA | 402.7 | 23.3 | 8.7 | 434.7 | 30.9 |
| GLR | 0 | 0 | 0 | 0 | 104.5 |
| HI | 2.5 | 0 | 2 | 4.5 | 28.8 |
| IA | 124.1 | 26.1 | 6.1 | 156.3 | 0 |
| ID | 22.1 | 0 | 1.4 | 23.5 | 9.3 |
| IL | 240.3 | 1.9 | 10.2 | 252.4 | 70.3 |
| IN | 334.8 | 0.3 | 10 | 345.1 | 0 |
| KS | 62.6 | 0 | 1 | 63.6 | 0 |
| KY | 11.3 | 0 | 5.4 | 16.7 | 97.7 |
| LA | 292.6 | 13 | 31.9 | 337.5 | 124.6 |
| MA | 293.2 | 11.4 | 10.2 | 314.8 | 84.4 |
| MD | 325.6 | 0 | 0.9 | 326.5 | 74.5 |
| ME | 222 | 7.1 | 28.7 | 257.8 | 0 |
| MER | 1 | 0 | 0 | 1 | 77.9 |
| MI | 663.6 | 0 | 16.4 | 680 | 0 |
| MN | 38.9 | 5.4 | 2.9 | 47.2 | 155.5 |
| MO | 73.8 | 0 | 5.1 | 78.9 | 0 |
| MS | 216.7 | 1.6 | 42.3 | 260.6 | 146.1 |
| MT | 2.8 | 0 | 0.3 | 3.1 | 38.7 |
| NC | 337.3 | 13.4 | 71.9 | 422.6 | 123.8 |
| ND | 171.9 | 2.4 | 18.5 | 192.8 | 175.9 |
| NE | 162.1 | 0 | 10.8 | 172.9 | 78 |

| Wing | C1 | C2 | C3 | CAP Corporate | L1 |
|---|---|---|---|---|---|
| NER | 0 | 0 | 0 | 0 | 34.8 |
| NH | 46.8 | 0 | 0 | 46.8 | 106.98 |
| NHQ | 49.3 | 0 | 0 | 49.3 | 632.8 |
| NJ | 82.9 | 0 | 9.3 | 92.2 | 32.7 |
| NM | 208.23 | 2.8 | 29.2 | 240.23 | 46.2 |
| NV | 403.6 | 117.8 | 0 | 521.4 | 98.4 |
| NY | 380.8 | 0 | 7.1 | 387.9 | 15.8 |
| OH | 25.7 | 0.66 | 13.97 | 40.33 | 15.4 |
| OK | 87 | 5.9 | 2.7 | 95.6 | 60.6 |
| OR | 56.3 | 0.9 | 11.5 | 68.7 | 139.1 |
| PA | 290 | 2.4 | 10.9 | 303.3 | 56.3 |
| PR | 6.1 | 0.8 | 6.6 | 13.5 | 37 |
| RI | 122.4 | 5.1 | 6.2 | 133.7 | 0 |
| SC | 563 | 0 | 9.5 | 572.5 | 114.1 |
| SD | 28.1 | 0 | 2.1 | 30.2 | 1.2 |
| SWR | 0 | 0 | 0 | 0 | 23.7 |
| TN | 184.1 | 0 | 88.3 | 272.4 | 20.2 |
| TX | 503.5 | 2.4 | 13.8 | 519.7 | 82.3 |
| UT | 10.1 | 2.9 | 1.3 | 14.3 | 3.6 |
| VA | 128.42 | 0 | 2.1 | 130.52 | 105.7 |
| VT | 70 | 1.8 | 2.3 | 74.1 | 0 |
| WA | 352.1 | 11 | 33.4 | 396.5 | 96.8 |
| WI | 459.4 | 6.7 | 39.7 | 505.8 | 12.8 |
| WV | 286.7 | 10.7 | 12.8 | 310.2 | 4 |
| WY | 43 | 5 | 0 | 48 | 41.1 |
| **Total** | **12,283.65** | **640.56** | **758.47** | **13,682.68** | **3,964.28** |

NOTE: CAP Corporate hours = C1 + C2 + C3 mission hours.

# APPENDIX H

# Average CAP Aircraft Utilization Rate by Wing

| Wing | Total Hours | Aircraft | Avg. Utilization Rate |
|---|---|---|---|
| AK | 3,363.0 | 33 | 101.91 |
| AL | 5,606.5 | 20 | 280.33 |
| AR | 4,429.6 | 9 | 492.18 |
| AZ | 4,637.2 | 18 | 257.62 |
| CA | 4,134.1 | 28 | 147.65 |
| CO | 3,133.9 | 15 | 208.93 |
| CT | 915.7 | 6 | 152.62 |
| DC | 694.7 | 3 | 231.57 |
| DE | 1,663.5 | 4 | 415.88 |
| FL | 5,862.5 | 21 | 279.17 |
| GA | 3,173.6 | 14 | 226.69 |
| HI | 3,413.3 | 11 | 310.30 |
| IA | 1,317.9 | 9 | 146.43 |
| ID | 893.5 | 7 | 127.64 |
| IL | 2,522.3 | 10 | 252.23 |
| IN | 2,178.2 | 7 | 311.17 |
| KS | 785.9 | 6 | 130.98 |
| KY | 3,356.3 | 12 | 279.69 |
| LA | 3,254.0 | 15 | 216.93 |
| MA | 1,472.0 | 10 | 147.20 |
| MD | 2,826.6 | 12 | 235.55 |
| ME | 3,445.8 | 10 | 344.58 |
| MI | 2,109.1 | 7 | 301.30 |
| MN | 3,754.8 | 19 | 197.62 |
| MO | 1,013.3 | 8 | 126.66 |
| MS | 1,733.9 | 7 | 247.70 |
| MT | 774.0 | 4 | 193.50 |
| NC | 2,908.8 | 9 | 323.20 |
| ND | 1,424.7 | 7 | 203.53 |
| NE | 1,427.9 | 6 | 237.98 |
| NH | 778.1 | 6 | 129.68 |
| NJ | 1,465.4 | 6 | 244.23 |
| NM | 4,552.6 | 16 | 284.54 |
| NV | 2,358.1 | 8 | 294.76 |
| NY | 1,272.4 | 18 | 70.69 |
| OH | 1,146.6 | 5 | 229.32 |
| OK | 1,886.3 | 8 | 235.79 |
| OR | 2,129.9 | 11 | 193.63 |
| PA | 4,435.8 | 25 | 177.43 |
| PR | 698.6 | 4 | 174.65 |
| RI | 633.1 | 3 | 211.03 |
| SC | 2,616.1 | 11 | 237.83 |
| SD | 1,246.0 | 5 | 249.20 |
| TN | 1,295.7 | 9 | 143.97 |
| TX | 9,473.7 | 34 | 278.64 |
| UT | 2,165.7 | 9 | 240.63 |
| VA | 2,848.7 | 12 | 237.39 |
| VT | 470.9 | 3 | 156.97 |
| WA | 2,539.2 | 9 | 282.13 |
| WI | 4,249.6 | 14 | 303.54 |
| WV | 1,204.3 | 7 | 172.04 |
| WY | 508.5 | 4 | 127.13 |
| NHQ | 682.1 | 39 | 17.49 |
| GLR | 211.5 | 2 | 105.75 |
| MER | 115.9 | 1 | 115.90 |
| NER | 122.9 | 5 | 24.58 |
| SWR | 306.4 | 1 | 306.40 |

**NOTE:** HQ CAP (NHQ) has 39 aircraft assigned due to the following: Aircraft were assigned to NHQ while in-transit (move from one wing to another), awaiting major maintenance, awaiting disposition (sale or assignment to a wing)

# APPENDIX I

# Average CAP "A" Mission Aircraft Utilization Rate by Wing

| Wing | "A" Mission Hours | Aircraft | Avg. Utilization Rate |
|---|---|---|---|
| AK | 1,346.2 | 33 | 40.79 |
| AL | 3,136.27 | 20 | 156.81 |
| AR | 2,274.6 | 9 | 252.73 |
| AZ | 1,790.1 | 18 | 99.45 |
| CA | 2,570.4 | 28 | 91.80 |
| CO | 1,352.9 | 15 | 90.19 |
| CT | 515.1 | 6 | 85.85 |
| DC | 284.6 | 3 | 94.87 |
| DE | 1,281.6 | 4 | 320.40 |
| FL | 3,443.0 | 21 | 163.95 |
| GA | 1,561.5 | 14 | 111.54 |
| HI | 3,299.4 | 11 | 299.95 |
| IA | 677.1 | 9 | 75.23 |
| ID | 558.4 | 7 | 79.77 |
| IL | 864.1 | 10 | 86.41 |
| IN | 1,550.1 | 7 | 221.44 |
| KS | 411.0 | 6 | 68.50 |
| KY | 2,621.1 | 12 | 218.43 |
| LA | 2,357.3 | 15 | 157.15 |
| MA | 510.3 | 10 | 51.03 |
| MD | 677.8 | 12 | 56.48 |
| ME | 2,403.3 | 10 | 240.33 |
| MI | 891.8 | 7 | 127.40 |
| MN | 1,360.6 | 19 | 71.61 |
| MO | 652.6 | 8 | 81.58 |
| MS | 837.9 | 7 | 119.70 |
| MT | 654.6 | 4 | 163.65 |
| NC | 1,308.6 | 9 | 145.40 |
| ND | 624.2 | 7 | 89.17 |
| NE | 662.3 | 6 | 110.38 |
| NH | 396.24 | 6 | 66.04 |
| NJ | 818.2 | 6 | 136.37 |
| NM | 3,495.84 | 16 | 218.49 |
| NV | 1,462.3 | 8 | 182.79 |
| NY | 384.4 | 18 | 21.36 |
| OH | 442.19 | 5 | 88.44 |
| OK | 873.3 | 8 | 109.16 |
| OR | 1,324.1 | 11 | 120.37 |
| PA | 2,519.3 | 25 | 100.77 |
| PR | 435.6 | 4 | 108.90 |
| RI | 226.4 | 3 | 75.47 |
| SC | 1,207.3 | 11 | 109.75 |
| SD | 972.6 | 5 | 194.52 |
| TN | 663.1 | 9 | 73.68 |
| TX | 5,404.0 | 34 | 158.94 |
| UT | 1,508.5 | 9 | 167.61 |
| VA | 1,331.09 | 12 | 110.92 |
| VT | 193.1 | 3 | 64.37 |
| WA | 1,411.2 | 9 | 156.80 |
| WI | 2,127.1 | 14 | 151.94 |
| WV | 411.3 | 7 | 58.76 |
| WY | 243.1 | 4 | 60.78 |
| NHQ | 0 | 39 | 0.00 |
| GLR | 83.1 | 2 | 41.55 |
| MER | 13.8 | 1 | 13.80 |
| NER | 49.4 | 5 | 9.88 |
| SWR | 161.9 | 1 | 161.90 |

**NOTE:** HQ CAP (NHQ) has 39 aircraft assigned due to the following: Aircraft were assigned to NHQ while in-transit (move from one wing to another), awaiting major maintenance, awaiting disposition (sale or assignment to a wing)

# APPENDIX J

# Average CAP "B" Mission Aircraft Utilization Rate by Wing

| Wing | "B" Mission Hours | Aircraft | Avg. Utilization Rate |
|---|---|---|---|
| AK | 1,480.3 | 33 | 44.86 |
| AL | 1,693.7 | 20 | 84.69 |
| AR | 1,269.0 | 9 | 141.00 |
| AZ | 1,779.6 | 18 | 98.87 |
| CA | 1,026.5 | 28 | 36.66 |
| CO | 1,323.3 | 15 | 88.22 |
| CT | 357.3 | 6 | 59.55 |
| DC | 324.2 | 3 | 108.07 |
| DE | 335.8 | 4 | 83.95 |
| FL | 1,671.4 | 21 | 79.59 |
| GA | 1,146.5 | 14 | 81.89 |
| HI | 80.6 | 11 | 7.33 |
| IA | 484.52 | 9 | 53.84 |
| ID | 302.3 | 7 | 43.19 |
| IL | 1,335.5 | 10 | 133.55 |
| IN | 283 | 7 | 40.43 |
| KS | 311.3 | 6 | 51.88 |
| KY | 620.8 | 12 | 51.73 |
| LA | 434.6 | 15 | 28.97 |
| MA | 562.5 | 10 | 56.25 |
| MD | 1,747.8 | 12 | 145.65 |
| ME | 784.7 | 10 | 78.47 |
| MI | 537.3 | 7 | 76.76 |
| MN | 2,191.5 | 19 | 115.34 |
| MO | 281.8 | 8 | 35.23 |
| MS | 489.3 | 7 | 69.90 |
| MT | 77.6 | 4 | 19.40 |
| NC | 1,053.8 | 9 | 117.09 |
| ND | 431.8 | 7 | 61.69 |
| NE | 514.7 | 6 | 85.78 |
| NH | 228.1 | 6 | 38.02 |
| NJ | 522.3 | 6 | 87.05 |
| NM | 770.33 | 16 | 48.15 |
| NV | 276.0 | 8 | 34.50 |
| NY | 484.3 | 18 | 26.91 |
| OH | 648.65 | 5 | 129.73 |
| OK | 856.8 | 8 | 107.10 |
| OR | 598 | 11 | 54.36 |
| PA | 1,556.9 | 25 | 62.28 |
| PR | 212.5 | 4 | 53.13 |
| RI | 273.0 | 3 | 91.00 |
| SC | 722.2 | 11 | 65.65 |
| SD | 242.0 | 5 | 48.40 |
| TN | 340.0 | 9 | 37.78 |
| TX | 3467.7 | 34 | 101.99 |
| UT | 639.3 | 9 | 71.03 |
| VA | 1,281.4 | 12 | 106.78 |
| VT | 203.7 | 3 | 67.90 |
| WA | 634.7 | 9 | 70.52 |
| WI | 1,603.9 | 14 | 114.56 |
| WV | 478.8 | 7 | 68.40 |
| WY | 176.3 | 4 | 44.08 |
| NHQ | 0 | 39 | 0.00 |
| GLR | 23.9 | 2 | 11.95 |
| MER | 23.2 | 1 | 23.20 |
| NER | 38.7 | 5 | 7.74 |
| SWR | 120.8 | 1 | 120.80 |

**NOTE:** HQ CAP (NHQ) has 39 aircraft assigned due to the following: Aircraft were assigned to NHQ while in-transit (move from one wing to another), awaiting major maintenance, awaiting disposition (sale or assignment to a wing)

# APPENDIX K

# Average CAP "C" Mission Aircraft Utilization Rate by Wing

| Wing | "C" Mission Hours | Aircraft | Avg. Utilization Rate |
|---|---|---|---|
| AK | 464.2 | 33 | 14.07 |
| AL | 751.5 | 20 | 37.58 |
| AR | 639.5 | 9 | 71.06 |
| AZ | 959.8 | 18 | 53.32 |
| CA | 481.2 | 28 | 17.19 |
| CO | 210.5 | 15 | 14.03 |
| CT | 43.3 | 6 | 7.22 |
| DC | 80.0 | 3 | 26.67 |
| DE | 44.9 | 4 | 11.23 |
| FL | 748.1 | 21 | 35.62 |
| GA | 434.7 | 14 | 31.05 |
| HI | 4.5 | 11 | 0.41 |
| IA | 156.3 | 9 | 17.37 |
| ID | 23.5 | 7 | 3.36 |
| IL | 252.4 | 10 | 25.24 |
| IN | 345.1 | 7 | 49.30 |
| KS | 63.6 | 6 | 10.60 |
| KY | 16.7 | 12 | 1.39 |
| LA | 337.5 | 15 | 22.50 |
| MA | 314.8 | 10 | 31.48 |
| MD | 326.5 | 12 | 27.21 |
| ME | 257.8 | 10 | 25.78 |
| MI | 680.0 | 7 | 97.14 |
| MN | 47.2 | 19 | 2.48 |
| MO | 78.9 | 8 | 9.86 |
| MS | 260.6 | 7 | 37.23 |
| MT | 3.1 | 4 | 0.78 |
| NC | 422.6 | 9 | 46.96 |
| ND | 192.8 | 7 | 27.54 |

| Wing | "C" Mission Hours | Aircraft | Avg. Utilization Rate |
|---|---|---|---|
| NE | 172.9 | 6 | 28.82 |
| NH | 46.8 | 6 | 7.80 |
| NJ | 92.2 | 6 | 15.37 |
| NM | 240.23 | 16 | 15.01 |
| NV | 521.4 | 8 | 65.18 |
| NY | 387.9 | 18 | 21.55 |
| OH | 40.33 | 5 | 8.07 |
| OK | 95.6 | 8 | 11.95 |
| OR | 68.7 | 11 | 6.25 |
| PA | 303.3 | 25 | 12.13 |
| PR | 13.5 | 4 | 3.38 |
| RI | 133.7 | 3 | 44.57 |
| SC | 572.5 | 11 | 52.05 |
| SD | 30.2 | 5 | 6.04 |
| TN | 272.4 | 9 | 30.27 |
| TX | 519.7 | 34 | 15.29 |
| UT | 14.3 | 9 | 1.59 |
| VA | 130.52 | 12 | 10.88 |
| VT | 74.1 | 3 | 24.70 |
| WA | 396.5 | 9 | 44.06 |
| WI | 505.8 | 14 | 36.13 |
| WV | 310.2 | 7 | 44.31 |
| WY | 48.0 | 4 | 12.00 |
| NHQ | 0 | 39 | 0.00 |
| GLR | 0 | 2 | 0.00 |
| MER | 1.0 | 1 | 1.00 |
| NER | 0 | 5 | 0.00 |
| SWR | 0 | 1 | 0.00 |

**NOTE:** HQ CAP (NHQ) has 39 aircraft assigned due to the following: Aircraft were assigned to NHQ while in-transit (move from one wing to another), awaiting major maintenance, awaiting disposition (sale or assignment to a wing)

# APPENDIX L

# Average CAP "L" Mission Aircraft Utilization Rate by Wing

| Wing | "L" Mission Hours | Aircraft | Avg. Utilization Rate |
|---|---|---|---|
| AK | 72.3 | 33 | 2.19 |
| AL | 25.0 | 20 | 1.25 |
| AR | 246.5 | 9 | 27.39 |
| AZ | 107.7 | 18 | 5.98 |
| CA | 56.0 | 28 | 2.00 |
| CO | 247.2 | 15 | 16.48 |
| CT | 0 | 6 | 0.00 |
| DC | 5.9 | 3 | 1.97 |
| DE | 1.2 | 4 | 0.30 |
| FL | 0 | 21 | 0.00 |
| GA | 30.9 | 14 | 2.21 |
| HI | 28.8 | 11 | 2.62 |
| IA | 0 | 9 | 0.00 |
| ID | 9.3 | 7 | 1.33 |
| IL | 70.3 | 10 | 7.03 |
| IN | 0 | 7 | 0.00 |
| KS | 0 | 6 | 0.00 |
| KY | 97.7 | 12 | 8.14 |
| LA | 124.6 | 15 | 8.31 |
| MA | 84.4 | 10 | 8.44 |
| MD | 74.5 | 12 | 6.21 |
| ME | 0 | 10 | 0.00 |
| MI | 0 | 7 | 0.00 |
| MN | 155.5 | 19 | 8.18 |
| MO | 0 | 8 | 0.00 |
| MS | 146.1 | 7 | 20.87 |
| MT | 38.7 | 4 | 9.68 |
| NC | 123.8 | 9 | 13.76 |
| ND | 175.9 | 7 | 25.13 |
| NE | 78.0 | 6 | 13.00 |
| NH | 106.98 | 6 | 17.83 |
| NJ | 32.7 | 6 | 5.45 |
| NM | 46.2 | 16 | 2.89 |
| NV | 98.4 | 8 | 12.30 |
| NY | 15.8 | 18 | 0.88 |
| OH | 15.4 | 5 | 3.08 |
| OK | 60.6 | 8 | 7.58 |
| OR | 139.1 | 11 | 12.65 |
| PA | 56.3 | 25 | 2.25 |
| PR | 37.0 | 4 | 9.25 |
| RI | 0 | 3 | 0.00 |
| SC | 114.1 | 11 | 10.37 |
| SD | 1.2 | 5 | 0.24 |
| TN | 20.2 | 9 | 2.24 |
| TX | 82.3 | 34 | 2.42 |
| UT | 3.6 | 9 | 0.40 |
| VA | 105.7 | 12 | 8.81 |
| VT | 0 | 3 | 0.00 |
| WA | 96.8 | 9 | 10.76 |
| WI | 12.8 | 14 | 0.91 |
| WV | 4.0 | 7 | 0.57 |
| WY | 41.1 | 4 | 10.28 |
| NHQ | 632.8 | 39 | 16.23 |
| GLR | 104.5 | 2 | 52.25 |
| MER | 77.9 | 1 | 77.90 |
| NER | 34.8 | 5 | 6.96 |
| SWR | 23.7 | 1 | 23.70 |

**NOTE:** HQ CAP (NHQ) has 39 aircraft assigned due to the following: Aircraft were assigned to NHQ while in-transit (move from one wing to another), awaiting major maintenance, awaiting disposition (sale or assignment to a wing)